

Amendments to the Claims:

This listing of claims will replace all prior listings of claims in the application.

Listing Of Claims:

1 (Currently Amended): An image sensing apparatus comprising:

an image sensing element having a photoelectric conversion portion at which a plurality of photoelectric conversion elements are two-dimensionally arrayed generating and storing signal charges of an object; [[,]]

a vertical transfer ~~portions~~ portion which vertically ~~transfer~~ transfers the signal charges stored in the photoelectric conversion portion in accordance with a vertical transfer pulse, the vertical transfer portion also generates unnecessary charges different from the signal charges; [[,]]

a horizontal transfer portion which horizontally transfers the signal charges transferred from the vertical transfer ~~portions~~ portion in accordance with a horizontal transfer pulse; [[,]]
[[and]]

a horizontal drain portion which drains charges overflowing from the horizontal transfer portion;

a charge detection portion which converts the signal charges transferred from the horizontal transfer portion into a signal voltage or a signal current;

a switch which inputs a reference voltage from a reference power supply; and

a driving circuit which, while the signal charges are stored in the photoelectric conversion portion, stops providing the horizontal transfer pulse to the horizontal transfer portion, and drains the unnecessary charges generated at the vertical transfer portions of said

image sensing element through the horizontal drain portion only if the unnecessary charges are transferred over a tolerance of the horizontal transfer portion [[,]]

~~wherein the reference voltage is adjusted without transferring signal charges of the photoelectric conversion portion while charge accumulation is executed in the photoelectric conversion portion, and~~

~~wherein a reset of the charge detection portion by the driving circuit is continued during the draining of the unnecessary charges.~~

2 (Currently Amended): The apparatus according to claim 1, wherein ~~[[a]]~~ the horizontal drain portion which drains unnecessary charges is arranged adjacent to the horizontal transfer portion in a vertical direction of the horizontal transfer portion, and when the unnecessary charges generated at the vertical transfer ~~portions~~ portion of said image sensing element reaches a predetermined amount at the horizontal transfer portion, the unnecessary charges are drained ~~[[to]]~~ through the horizontal drain portion.

3 (Currently Amended): The apparatus according to claim 1, wherein while the signal charges are stored in the photoelectric conversion portion, the vertical transfer ~~portions are~~ portion is driven at high speed to drain the unnecessary charges generated at the vertical transfer ~~portions~~ portion of said image sensing element.

4 (Currently Amended): The apparatus according to claim 1, wherein while the signal charges are stored in the photoelectric conversion portion, potentials of the vertical transfer ~~portions are~~ portion is set to the same potential to drain the unnecessary charges generated at the vertical transfer ~~portions~~ portion of said image sensing element.